CAMPUT/NARUC Bilateral May 10, 2015

EPA's Clean Power Plan

Régis Gosselin, Manitoba Public Utilities Board

Bilateral electricity relationship

- Both countries benefit from relationship
- Increased electricity supply
- Lower energy prices

Canada/US Relationship

- Enhanced reliability for both countries
- Complementarity benefits
  - Winter versus summer peaking
  - Hydro complements wind etc.
- Diversity of supply
- Economic development
- Access to low carbon resources

Bilateral electricity relationship

- Interconnected grid
  - 35 existing interconnections
- Fluid energy market
  - Majority of Canadian sales via spot market; long term contracts = 23% in 2013

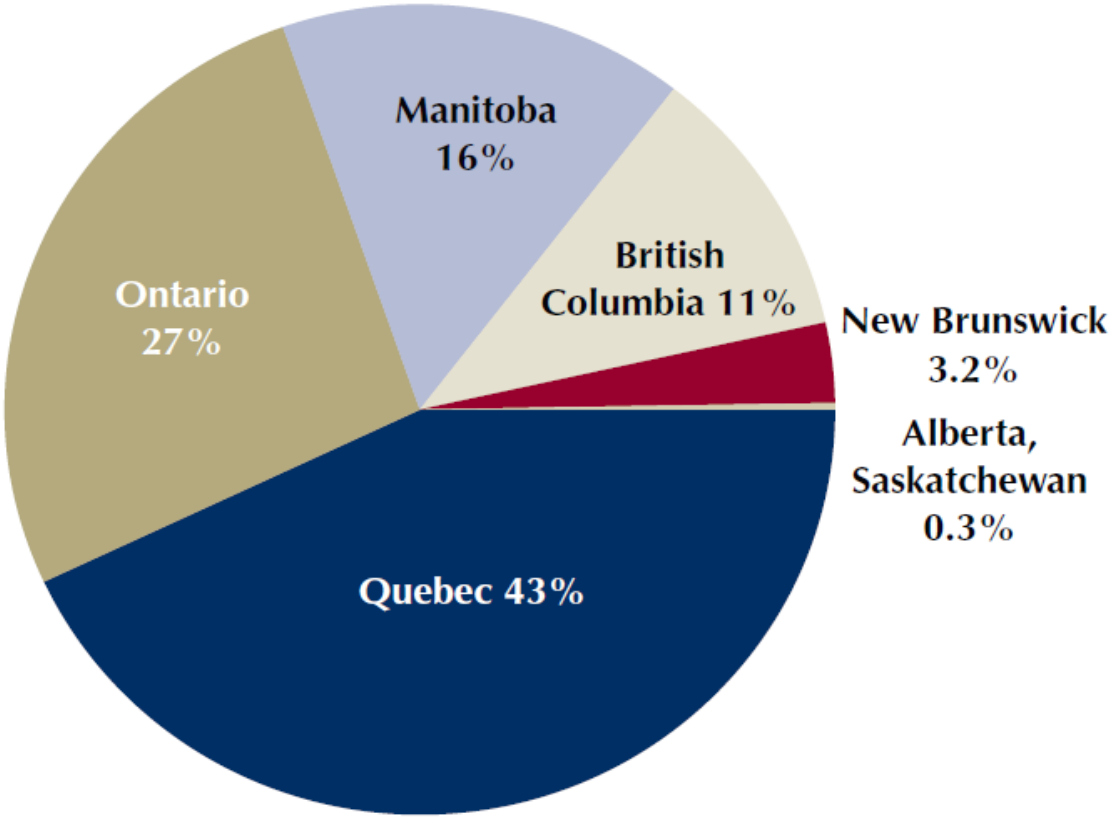
Canada's Electricity Exports

- 5-10% of generation exported to the USA
- Approx. 1.5% of total US consumption
- Exports generally increasing since 1990
- Now near 60 million megawatt-hours annually

2010 Electricity Imports

- Vermont: 38%
- Maine 18%
- Minnesota/North Dakota 12% (combined)
- New England 10% (all)
- New York 6%
- Michigan 6%

2013 Exports by Province



Source: National Energy Board of Canada, "Commodity Statistics: Electricity: Electricity Exports and Imports: Table 2A." February 2015. Available at: https://apps.neb-one.gc.ca/CommodityStatistics/Statistics.aspx?language=english

Canada's Electricity Imports

- Canada – winter peaking demand
- Imports when wind blows in the US and exports when US wind is not blowing
- Drought in Manitoba
- In 2013:
  - Exports from Canada: 62.3 TWh
  - Imports from US: 10. 6 TWh
  - BC was net energy importer

EPA's CPP

- Impact on US energy market being assessed
- Impact on Canada?

EPA Clean Power Plan

- Canada positioned to increase exports
- US will decide whether Canadian electricity imports can be used to address the change in US generation mix

Canada's Electricity Exports

- 1,500 megawatts (MW) of capacity added between 2003 and 2013
- As of early 2015, more than 4,000 MW of new hydropower capacity either under construction or nearing construction phase
- Additional 7,000 MW of new capacity in provisional stages of development

Current international Transmission Projects

Name	Sponsor	State-Province	Length (miles)	Voltage & Capacity	Purpose	In-service Date	U.S. Presidential Permit Status
Champlain Hudson Power Express	Transmission Developers Inc.	New York-Québec (QC)	333	1,000 MW, HVDC (underwater, underground, merchant)	Deliver hydro and wind energy from QC to New York City area	Fall 2017 (expected)	Application filed March 2010; issuance expected late 2014
Great Northern Transmission Line	Minnesota Power (MP)	Minnesota-Manitoba (MB)	220	500 kV, 750 MW, AC	Part of MP-MB Hydro PPA; supports building wind in North Dakota	June 2020 (expected)	Application filed April 2014
Lake Erie Connector	ITC	Pennsylvania-Ontario (ON)	60	1,000 MW, HVDC (underwater, merchant)	Deliver non- and low-emitting energy from ON, enhance service reliability	TBD	Application not yet filed
New England Clean Power Link	TDI-New England	Vermont (VT)-QC	154	1,000 MW, HVDC (underwater, underground, merchant)	Deliver renewable energy from QC into VT and New England	2019 (expected)	Application filed May 2014
Northern Pass	Northern Pass Transmission LLC	New Hampshire (NH)-Québec (QC)	187	1,200 MW, HVDC line with 345 kV AC spur	Deliver QC hydro into NH and New England	2017 (expected)	Application filed October 2010; re-filed with new route July 2013
Soule River Hydroelectric Project	Soule Hydro, LLC	Alaska (AK)-British Columbia (BC)	10	138 kV, HVAC (submarine)	Support 77 MW hydro project in AK (sales to BC or Pacific NW)	TBD	Application filed March 2013

Constraints

- Transmission constraints
  - US government permitting of cross-border transmission projects
- US exports
  - US export permits

EPA and Clean Power Plan

- Impact for Canada from a reliability perspective with respect to power flowing North?